NIEHS SBRP Website Update

Larry Whitson

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MDB, Inc.

MDB, Inc.

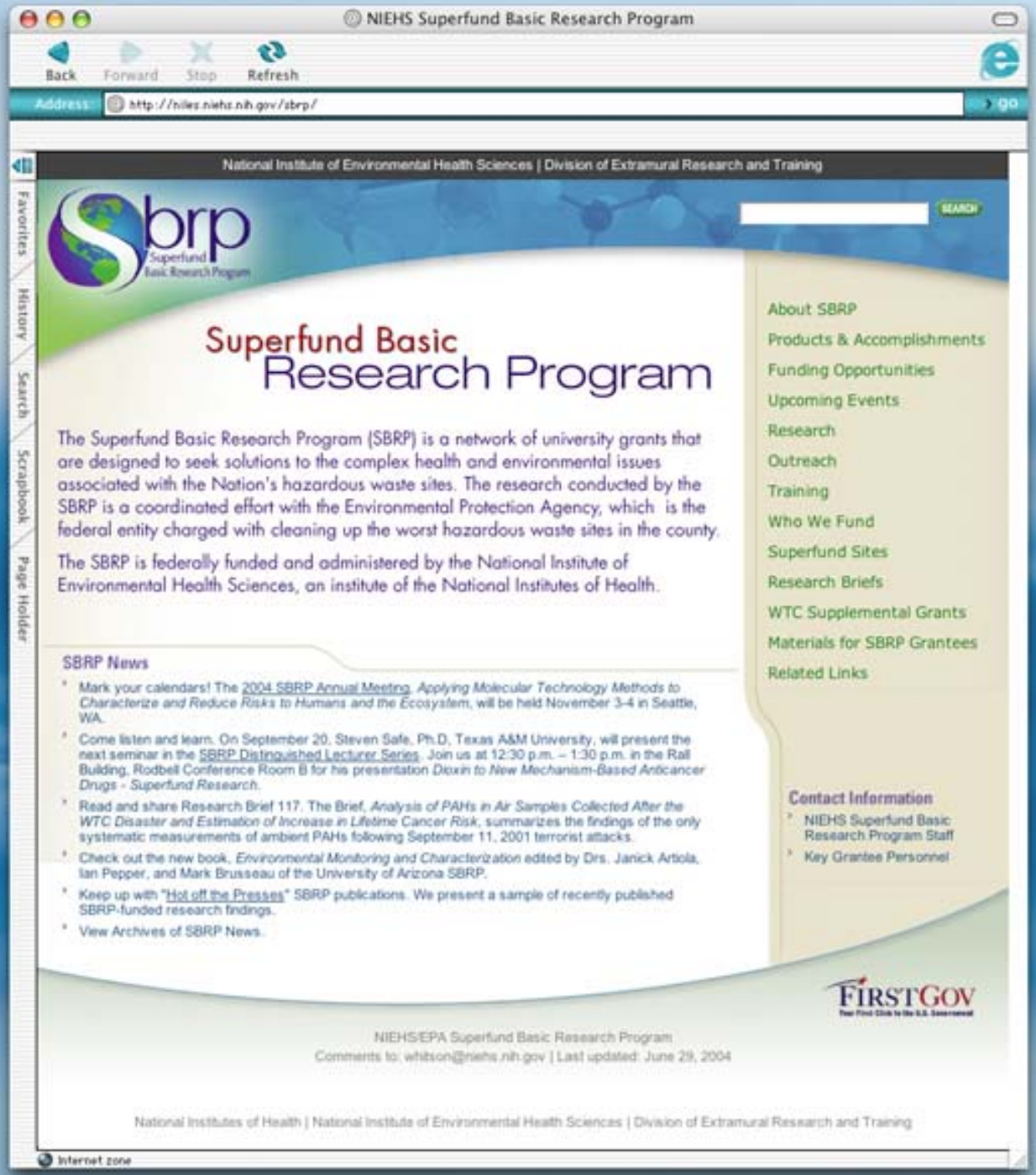
- Support SBRP communication efforts
- Web page and other graphic design
- Database design and maintenance
- SBRP Research Briefs
- Risk-e-Learning

MDB's SBRP Team

- David Summers, *Managing Director*
- Maureen Avakian, *Program Manager*
- Larry Reed, *Senior Tech Transfer Specialist*
- Larry Whitson, *Senior Communications Specialist*
- Manfred Stanfield, *Lead Software Architect and Database Designer*
- Derek Beck, *Graphic Designer*
- Justin Crane and Evan Dzierzynski, *Interns*

New SBRP Website

- Launched November 1, 2004
- New and improved with redesigned graphics and enhanced navigation
- Topic-focused, not university-based
- Highlights of research and outreach Accomplishments
- Improved search capabilities, including advanced search functions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Superfund Basic Research Program
The Superfund Basic Research Program (SBRP) is a network of university grants that are designed to seek solutions to the complex health and environmental issues associated with the Nation's hazardous waste sites. The research conducted by the SBRP is a coordinated effort with the Environmental Protection Agency, which is the federal entity charged with cleaning up the worst hazardous waste sites in the county.
The SBRP is federally funded and administered by the National Institute of Environmental Health Sciences, an institute of the National Institutes of Health.
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SBRP News
Mark your calendars! The 2004 SBRP Annual Meeting, Applying Molecular Technology Methods to Characterize and Reduce Risks to Humans and the Ecosystem, will be held November 3-4 in Seattle, WA.
Come listen and learn. On September 20, Steven Safe, Ph.D, Texas A&M University, will present the next seminar in the SBRP Distinguished Lecturer Series. Join us at 12:30 p.m. – 1:30 p.m. in the Rall Building, Rodbell Conference Room B for his presentation Dioxin to New Mechanism-Based Anticancer Drugs - Superfund Research.
Read and share Research Brief 117. The Brief, Analysis of PAHs in Air Samples Collected After the WTC Disaster and Estimation of Increase in Lifetime Cancer Risk, summarizes the findings of the only systematic measurements of ambient PAHs following September 11, 2001 terrorist attacks.
Check out the new book, Environmental Monitoring and Characterization edited by Drs. Janick Artiola, Ian Pepper, and Mark Brusseau of the University of Arizona SBRP.
Keep up with "Hot off the Presses" SBRP publications. We present a sample of recently published SBRP-funded research findings.
View Archives of SBRP News.
Contact Information
NIEHS Superfund Basic Research Program Staff
Key Grantee Personnel
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Comments to: whitson@niehs.nih.gov | Last updated: June 29, 2004
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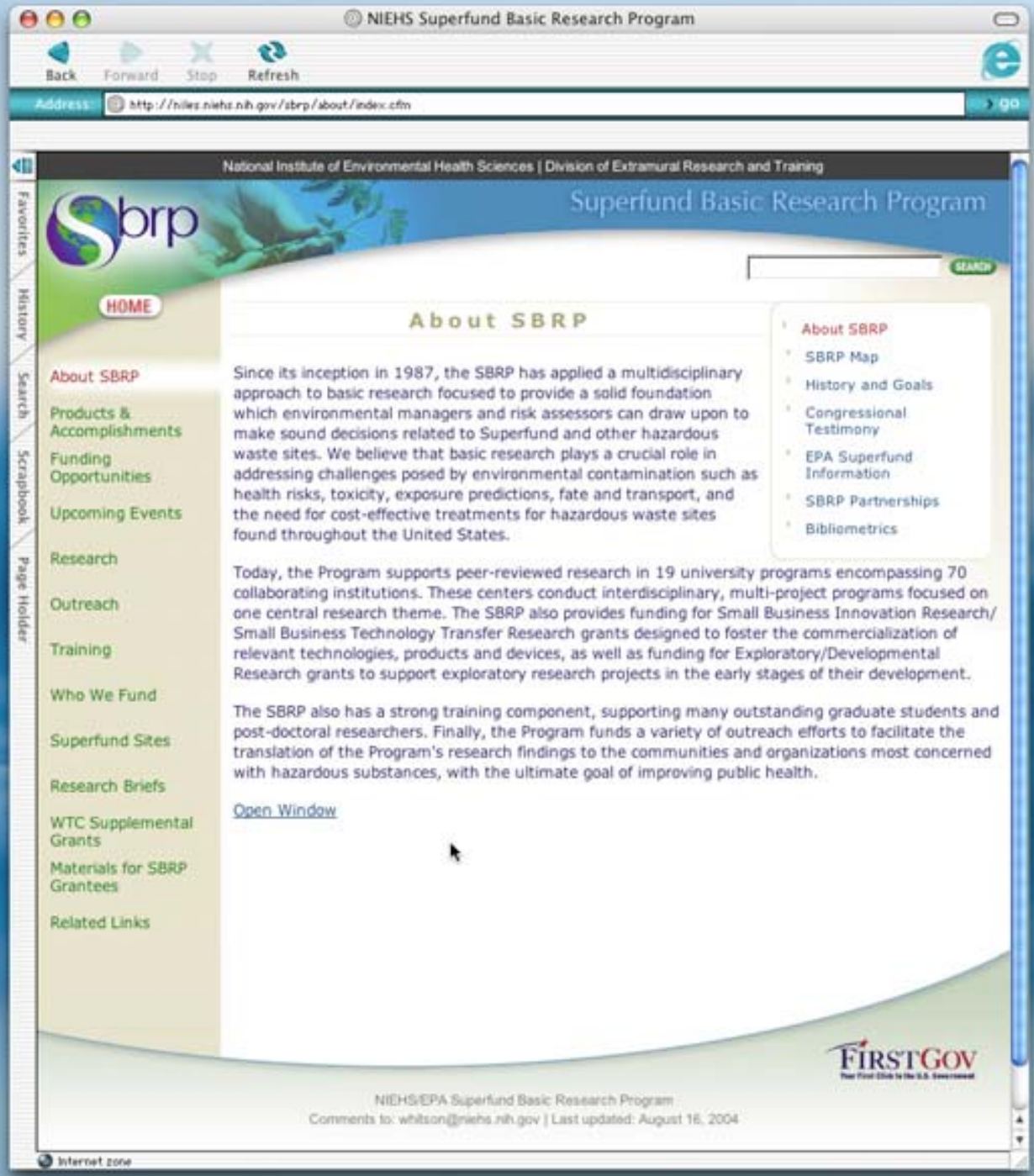
About SBRP

- Information on the SBRP as a whole
- Program overview, history, goals, partnerships
- SBRP Map
- Bibliometrics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About SBRP
Since its inception in 1987, the SBRP has applied a multidisciplinary approach to basic research focused to provide a solid foundation which environmental managers and risk assessors can draw upon to make sound decisions related to Superfund and other hazardous waste sites. We believe that basic research plays a crucial role in addressing challenges posed by environmental contamination such as health risks, toxicity, exposure predictions, fate and transport, and the need for cost-effective treatments for hazardous waste sites found throughout the United States.
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Today, the Program supports peer-reviewed research in 19 university programs encompassing 70 collaborating institutions. These centers conduct interdisciplinary, multi-project programs focused on one central research theme. The SBRP also provides funding for Small Business Innovation Research/ Small Business Technology Transfer Research grants designed to foster the commercialization of relevant technologies, products and devices, as well as funding for Exploratory/Developmental Research grants to support exploratory research projects in the early stages of their development.
The SBRP also has a strong training component, supporting many outstanding graduate students and post-doctoral researchers. Finally, the Program funds a variety of outreach efforts to facilitate the translation of the Program's research findings to the communities and organizations most concerned with hazardous substances, with the ultimate goal of improving public health.
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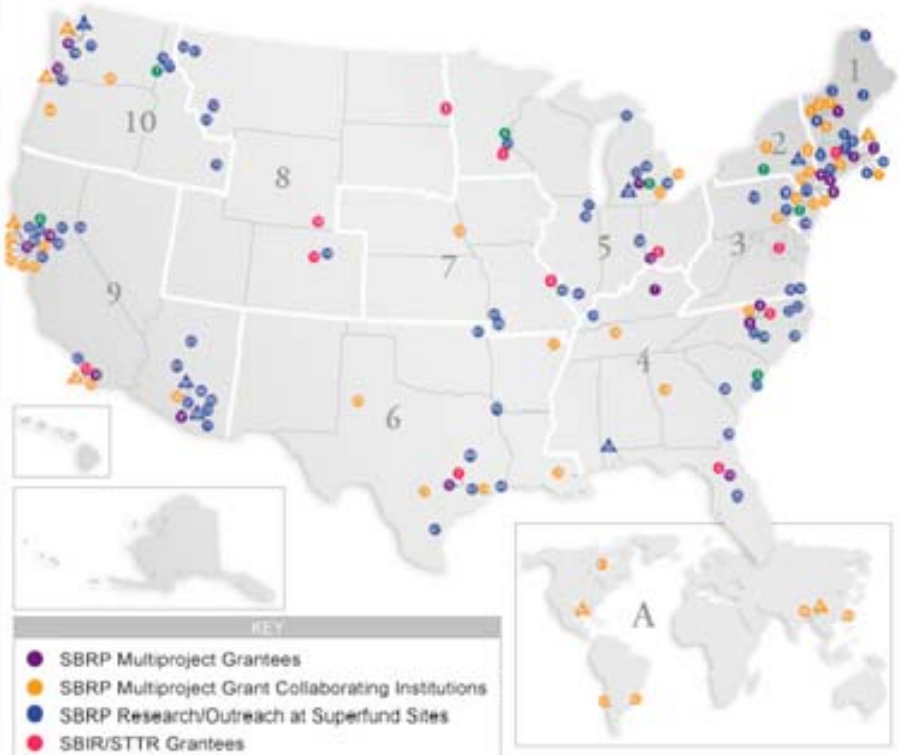

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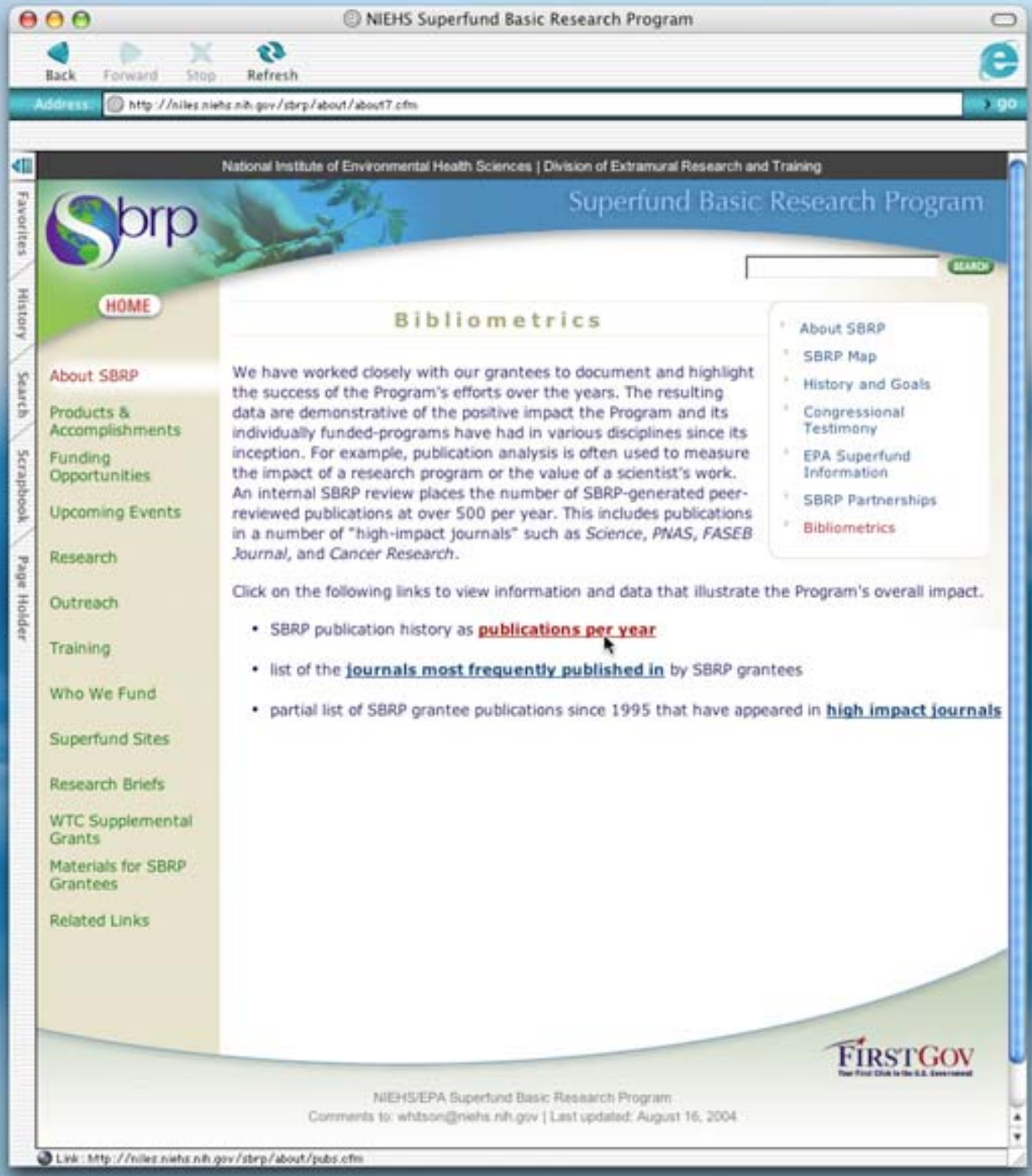
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We have worked closely with our grantees to document and highlight the success of the Program's efforts over the years. The resulting data are demonstrative of the positive impact the Program and its individually funded-programs have had in various disciplines since its inception. For example, publication analysis is often used to measure the impact of a research program or the value of a scientist's work. An internal SBRP review places the number of SBRP-generated peer-reviewed publications at over 500 per year. This includes publications in a number of "high-impact journals" such as Science, PNAS, FASEB Journal, and Cancer Research.
Click on the following links to view information and data that illustrate the Program's overall impact.
SBRP publication history as publications per year
list of the journals most frequently published in by SBRP grantees
partial list of SBRP grantee publications since 1995 that have appeared in high impact journals
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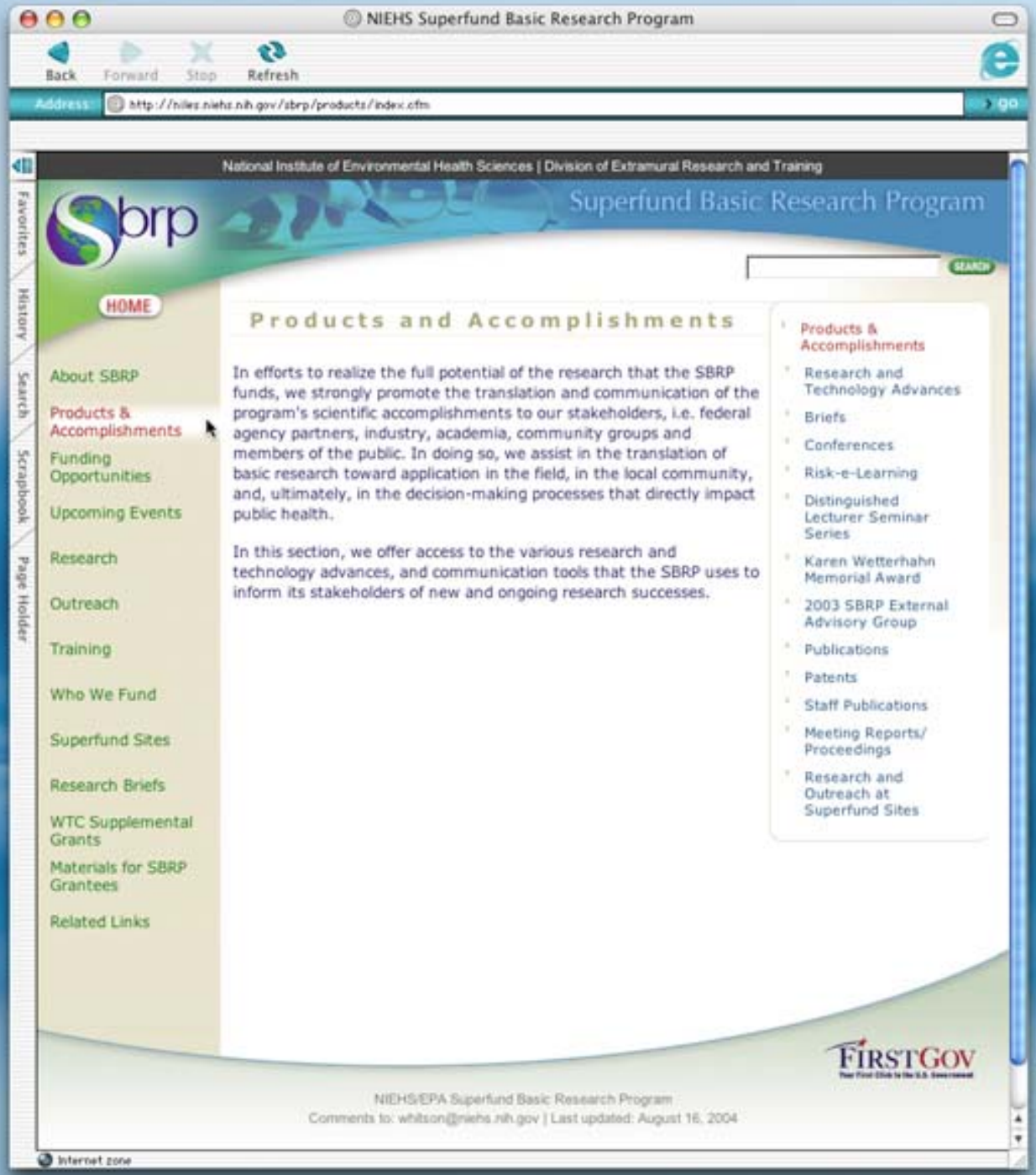
Products and Accomplishments

- Program-wide compilation
- Descriptions of the SBRP's research and technology advances
- Overviews of the SBRP's communication tools
- Summary of research and outreach at Superfund sites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Products and Accomplishments
In efforts to realize the full potential of the research that the SBRP funds, we strongly promote the translation and communication of the program's scientific accomplishments to our stakeholders, i.e. federal agency partners, industry, academia, community groups and members of the public. In doing so, we assist in the translation of basic research toward application in the field, in the local community, and, ultimately, in the decision-making processes that directly impact public health.
In this section, we offer access to the various research and technology advances, and communication tools that the SBRP uses to inform its stakeholders of new and ongoing research successes.
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Research and Technology Advances
Briefs
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Distinguished Lecturer Seminar Series
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2003 SBRP External Advisory Group
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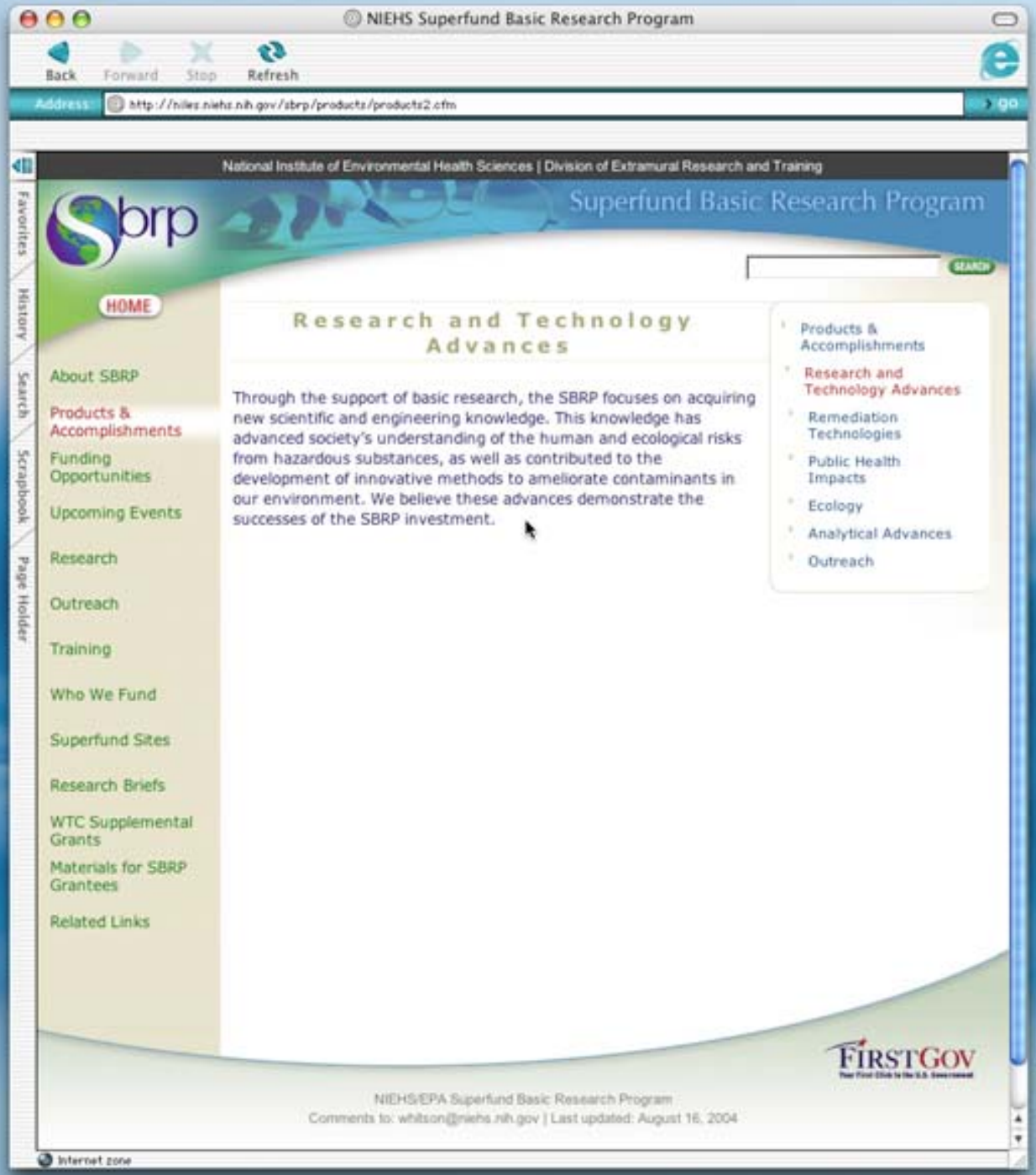
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Research and Technology Advances
Through the support of basic research, the SBRP focuses on acquiring new scientific and engineering knowledge. This knowledge has advanced society's understanding of the human and ecological risks from hazardous substances, as well as contributed to the development of innovative methods to ameliorate contaminants in our environment. We believe these advances demonstrate the successes of the SBRP investment.
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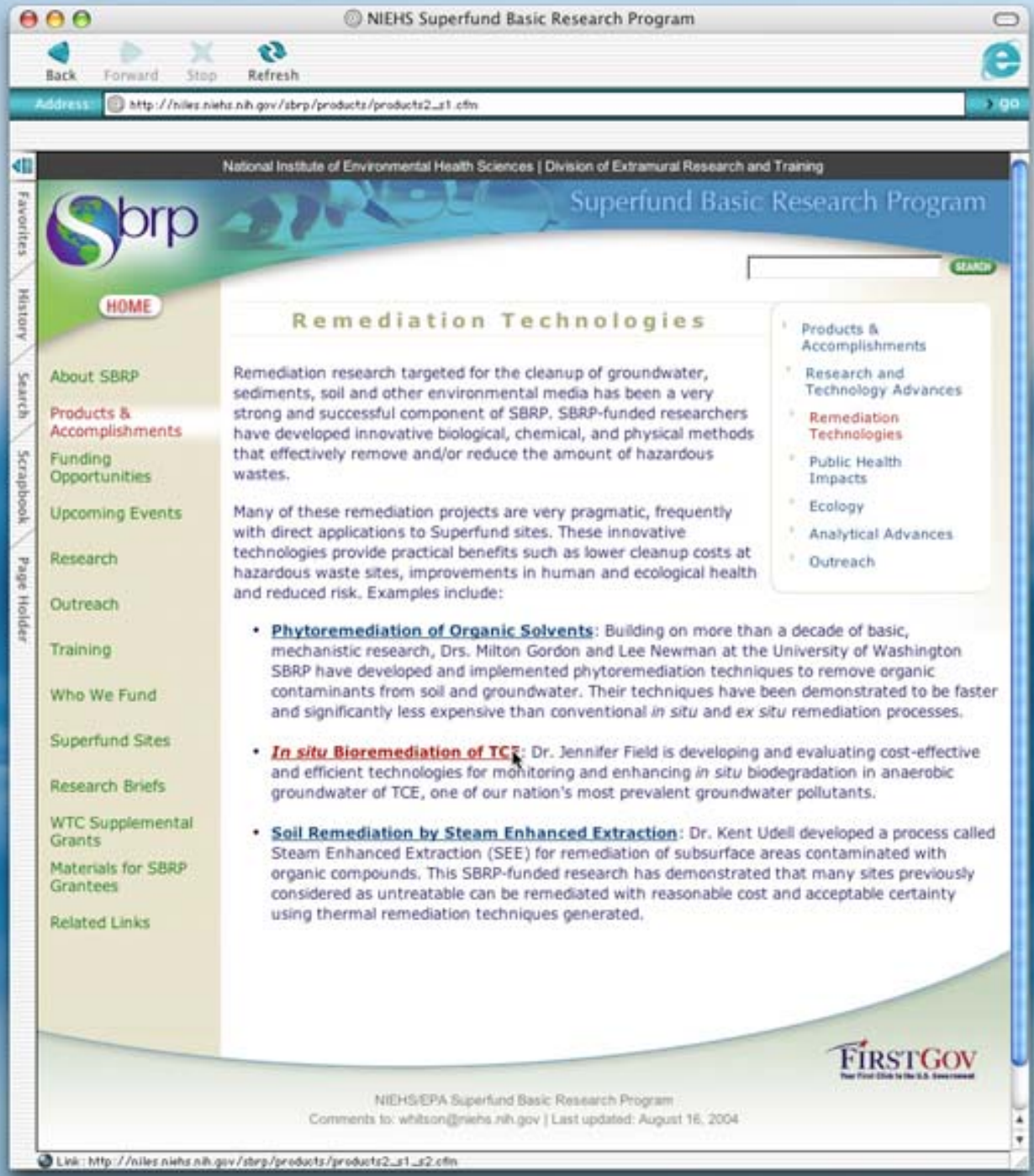
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Remediation research targeted for the cleanup of groundwater, sediments, soil and other environmental media has been a very strong and successful component of SBRP. SBRP-funded researchers have developed innovative biological, chemical, and physical methods that effectively remove and/or reduce the amount of hazardous wastes.
Many of these remediation projects are very pragmatic, frequently with direct applications to Superfund sites. These innovative technologies provide practical benefits such as lower cleanup costs at hazardous waste sites, improvements in human and ecological health and reduced risk. Examples include:
Phytoremediation of Organic Solvents: Building on more than a decade of basic, mechanistic research, Drs. Milton Gordon and Lee Newman at the University of Washington SBRP have developed and implemented phytoremediation techniques to remove organic contaminants from soil and groundwater. Their techniques have been demonstrated to be faster and significantly less expensive than conventional in situ and ex situ remediation processes.
In situ Bioremediation of TCE: Dr. Jennifer Field is developing and evaluating cost-effective and efficient technologies for monitoring and enhancing in situ biodegradation in anaerobic groundwater of TCE, one of our nation's most prevalent groundwater pollutants.
Soil Remediation by Steam Enhanced Extraction: Dr. Kent Udell developed a process called Steam Enhanced Extraction (SEE) for remediation of subsurface areas contaminated with organic compounds. This SBRP-funded research has demonstrated that many sites previously considered as untreatable can be remediated with reasonable cost and acceptable certainty using thermal remediation techniques generated.
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Phytoremediation

Phytoremediation is an innovative technology that uses fast-growing plants in engineered systems to degrade, extract, contain, or immobilize contaminants from soil or water. It is suitable for a variety of contaminants and conditions, and is an easy-to-maintain, cost-effective means to reduce both the amount and toxicity of pollutants. Phytoremediation preserves the state of the environment, is aesthetically pleasing, is solar-energy driven, can restore habitat for wildlife, and can clean up contamination in place rather than sealing it in place or transporting the contaminated materials to another site.

Drs. Milton Gordon and Lee Newman at the University of Washington SBRP have applied plant physiology, agronomy, microbiology, hydrogeology, and engineering to design remediation strategies for sites where the groundwater has been contaminated with organic solvents such as trichloroethene (trichloroethylene, TCE). These compounds are toxic, chemically unreactive, heavy, slightly soluble in water, and soluble in most other organic solvents, and tend to rapidly move through the soil and into groundwater. Conventional remediation technologies for these compounds are expensive and time consuming, and may result in the formation of toxic by-products.

Drs. Gordon and Newman have found that hybrid poplars will detoxify TCE, perchloroethylene, and carbon tetrachloride, all of which are widespread industrial pollutants. Their research team has worked on sites contaminated with persistent organics including TCE, carbon tetrachloride, methyl tertiary butyl ether (MTBE), formaldehyde, trichloroethane, ethylene dibromide, chlorobenzenes, and pesticides.

This research has had, and will continue to have, significant economic and public health impacts. Reduction of contaminant levels in soil, sediment and water results in decreased human exposures and improvements in environmental and human health. Currently, the United States spends more than $5 billion per year to clean up organic pollutants. Dr. Gordon estimates that up to half of organic pollutants could be cleaned up using phytoremediation at a cost of only 25 - 30% of standard methods.

They have successfully demonstrated the effectiveness of their phytoremediation systems under a variety of conditions. Drs. Gordon and Newman:

- Conducted a three-year field trial to determine the efficacy of phytoremediation using hybrid poplar trees to remove TCE from groundwater. This trial demonstrated that by simply planting

Karen Wetterhahn Memorial Award

Karen E. Wetterhahn, Ph.D., Professor of Chemistry and the Albert Bradley Third Century Professor in the Sciences at Dartmouth College, died June 8, 1997 at age 48. Her death was the result of dimethylmercury poisoning caused by the accidental spill of a few drops of the chemical on her latex glove-covered hand. Dr. Wetterhahn was an established authority on the effects of heavy metals on biological systems as well as a dedicated teacher and mentor. She played an integral role in the administration of the sciences at Dartmouth and co-founded Dartmouth's Women in Science Project (WISP), which is aimed at increasing the number of women majoring and taking courses in the sciences, including mathematics and engineering.

Products & Accomplishments
Karen Wetterhahn Memorial Award
2003 - Monica Mendez, University of Arizona
2002 - Elena Craft, Duke University
2001 - Blakely Adair, Texas Tech University
2000 - Angeline Andrew, Dartmouth College
1999 - Elisabeth Harrahy, Colorado State University
1998 - Sheila Healy, University of Arizona

Dr. Wetterhahn served as the Program Director of the Dartmouth College Superfund Basic Research Program (SBRP) in Hanover, New Hampshire from 1995 to 1997. In addition to overseeing the program, she was a Principal Investigator who studied the effects of toxic heavy metals on cellular processes. An acknowledged international expert in chromium carcinogenicity, Dr. Wetterhahn was a leader in conducting research on how metals initiate cancer and other metal-induced human diseases at the molecular level. She fostered links between biology, chemistry, environmental studies, engineering, and the medical school. "The life sciences are interdisciplinary" Wetterhahn insisted.

Her untimely death has given us an opportunity to reflect on the value of understanding how heavy metals can interfere with important cellular processes that are vital to life. As a way of honoring the life and scientific accomplishments of Dr. Wetterhahn, the NIEHS/EPA Superfund Basic Research Program (SBRP) has established an annual award to recognize an outstanding graduate student or post-doctoral researcher who studies metals and best demonstrates the qualities of scientific excellence exhibited by Dr. Wetterhahn.

The recipient of the Karen Wetterhahn Memorial Award receives support to one major scientific conference, in addition to travel funds to attend the Superfund Basic Research Program Annual Meeting where the awardee is invited to present their research. The recipient is also invited to visit the National Institute of Environmental Health Sciences (NIEHS) to meet with senior staff and to

Monica Mendez

2003 Karen Wetterhahn Memorial Award Recipient

The Superfund Basic Research Program (SBRP) is pleased to announce that Monica Mendez was the recipient of the sixth annual Karen Wetterhahn Memorial Award. This year's award was presented to Ms. Mendez on November 11, 2003 at the SBRP Annual Meeting at Dartmouth College in Hanover, New Hampshire. The presentation was particularly special this year because Karen Wetterhahn was the founding Program Director of Dartmouth College's SBRP. Dr. James Wright, President of Dartmouth College participated in the award presentation by commemoratating Dr. Wetterhahn's contributions to Dartmouth College.

The SBRP presents this annual award to an outstanding scholar to pay tribute to the life and scientific accomplishments of Karen E. Wetterhahn. Dr. Wetterhahn died June 8, 1997 as the result of an accidental exposure to dimethylmercury. She was an established authority on the effects of heavy metals on biological systems as well as a dedicated teacher and mentor.

Ms. Mendez is in the second year of her PhD training in the Soil, Water, and Environmental Program at the University of Arizona where she is participating in interdisciplinary studies in plant physiology and microbiology. She earned the award based on her research excellence in her investigations of the microbial-plant interactions that accompany successful establishment of vegetation in harsh environments. Ms. Mendez' investigations of the use of revegetation with native plants to stabilize the metals in mine tailings could lead to a low cost and low maintenance remediation strategy applicable to the hundreds of thousands of abandoned mine sites in the arid southwestern United States.

The NIEHS congratulates Ms. Mendez on her research accomplishments and wishes her continued success in her scientific career.


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SBRP Research/Outreach at Superfund Sites
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Region 2: NJ,NY,PR,VI
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Region 4: AL,FL,GA,KY,MS,NC,SC,TN
Region 5: IL,IN,MI,MN,OH,WI
Region 6: AR,LA,NM,OK,TX
Region 7: IA, KS, MO, NE
Region 8: CO,MT,ND,SD,UT,WY
Region 9: AZ,CA,HI,NV
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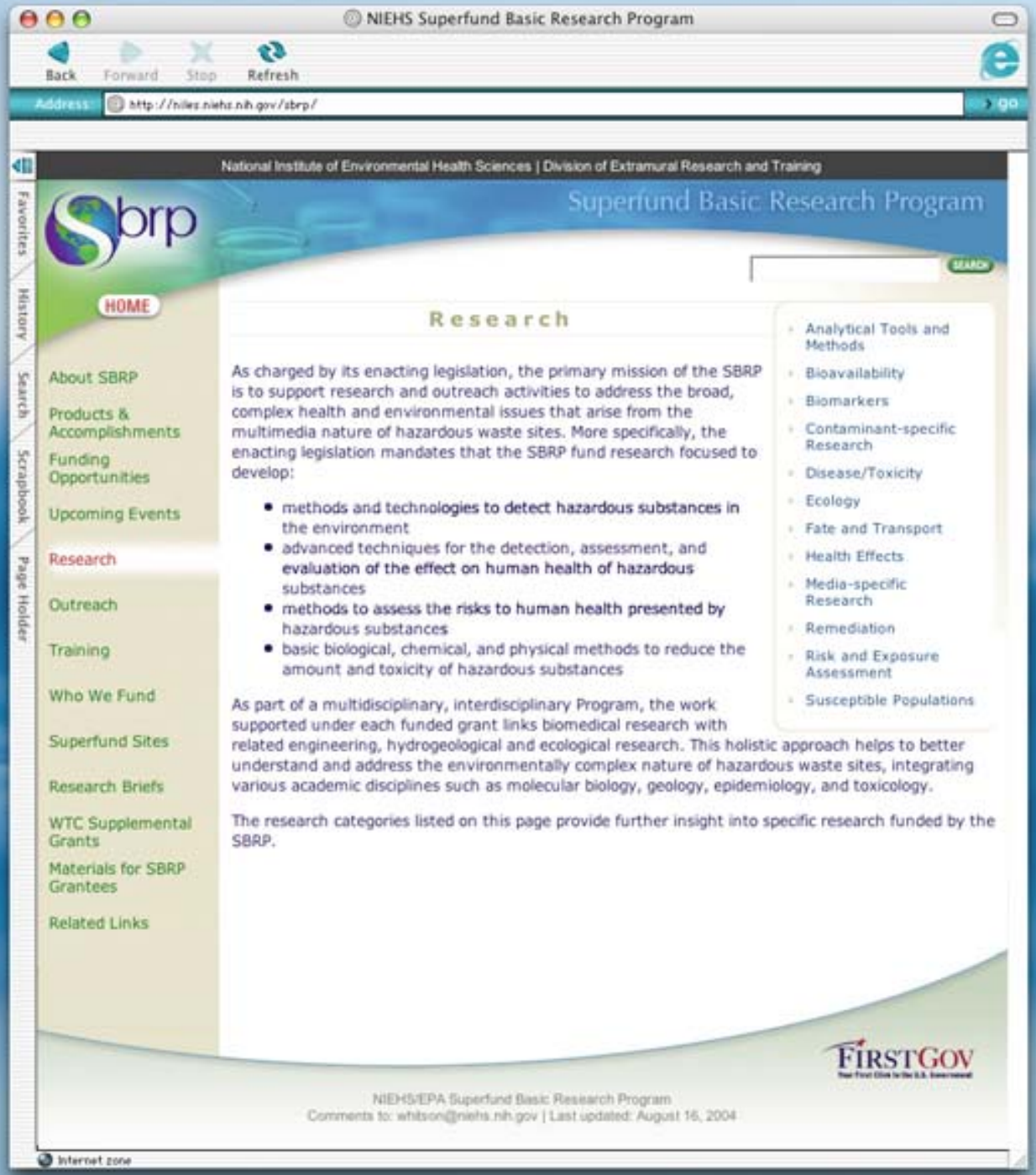
Research

- Topic-focused, not university-based
- Expanded navigation
- Specific search options tailored to each topic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Research
As charged by its enacting legislation, the primary mission of the SBRP is to support research and outreach activities to address the broad, complex health and environmental issues that arise from the multimedia nature of hazardous waste sites. More specifically, the enacting legislation mandates that the SBRP fund research focused to develop:
methods and technologies to detect hazardous substances in the environment
advanced techniques for the detection, assessment, and evaluation of the effect on human health of hazardous substances
methods to assess the risks to human health presented by hazardous substances
basic biological, chemical, and physical methods to reduce the amount and toxicity of hazardous substances
Analytical Tools and Methods
Bioavailability
Biomarkers
Contaminant-specific Research
Disease/Toxicity
Ecology
Fate and Transport
Health Effects
Media-specific Research
Remediation
Risk and Exposure Assessment
Susceptible Populations
As part of a multidisciplinary, interdisciplinary Program, the work supported under each funded grant links biomedical research with related engineering, hydrogeological and ecological research. This holistic approach helps to better understand and address the environmentally complex nature of hazardous waste sites, integrating various academic disciplines such as molecular biology, geology, epidemiology, and toxicology.
The research categories listed on this page provide further insight into specific research funded by the SBRP.
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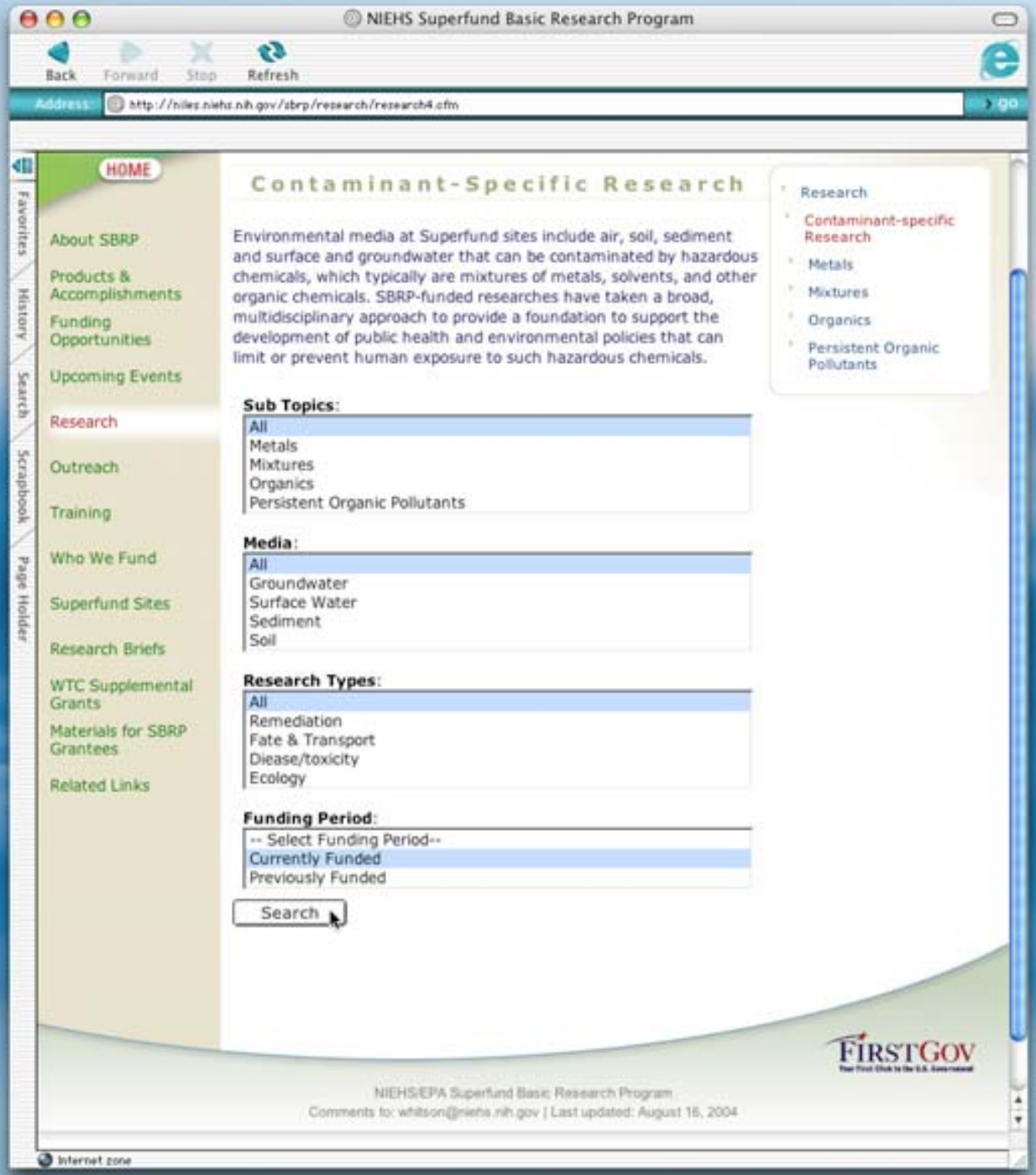
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Contaminant-Specific Research
Environmental media at Superfund sites include air, soil, sediment and surface and groundwater that can be contaminated by hazardous chemicals, which typically are mixtures of metals, solvents, and other organic chemicals. SBRP-funded researches have taken a broad, multidisciplinary approach to provide a foundation to support the development of public health and environmental policies that can limit or prevent human exposure to such hazardous chemicals.
Sub Topics:
All
Metals
Mixtures
Organics
Persistent Organic Pollutants
Media:
All
Groundwater
Surface Water
Sediment
Soil
Research Types:
All
Remediation
Fate & Transport
Diease/toxicity
Ecology
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-- Select Funding Period--
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Search Results
Based upon your selection on the previous page, these SBRP Projects matched your search criteria.
SBRP Multiproject Grants
Boston University
Bioinformatics and Molecular Modeling
Project Leader: Sandor Vajda (Boston University, Department of Biomedical Engineering)
Funding Period: 2000-2004
Cytochrome P450 in Developmental Toxicity
Project Leader: John J. Stegeman (Woods Hole Oceanographic Institution)
Funding Period: 2000-2004
Developmental Neurotoxicity of Xenoestrogens in Zebrafish
Project Leader: Gloria V. Callard (Boston University, Department of Biology)
Funding Period: 2000-2004
Endocrine/Reproductive Disruption by Ground & Surface Waters
Project Leader: Ian P. Callard (Boston University, Department of Biology)
Funding Period: 2000-2004
Iron-Dependent Oxidative Remediation of Chlorethylenes
Project Leader: Pericles Stavropoulos
Funding Period: 2000-2004
PCE-Contaminated Water & Disorders of Reproduction and Development
Project Leader: Ann Aschengrau (Boston University School of Public Health)
Funding Period: 1995-2004
PPAR, Hormones, and Xenobiotics
Project Leader: David J. Waxman (Boston University, Department of Biology)
Funding Period: 2000-2004
Role of Two AHRs in Dioxin Sensitivity and Resistance
Project Leader: Mark E. Hahn (Woods Hole Oceanographic Institution)
Funding Period: 2000-2004
The Aryl Hydrocarbon Receptor/Transcription Factor as a Regulator of Hydrocarbon Bioactivity
Project Leader: David Sherr (Boston University School of Public Health)
Link: http://niles.niehs.nih.gov/sbrp/Programs/Program_detail.cfm?Project_ID=P42ES7881900

Training

- Opportunities for Students
- SBRP Student Successes
- NIOSH and other SBRP-funded training

Dr. Grantley Charles

While working towards his Ph.D. in Kathleen Shiverick's laboratory at the University of Florida, Grantley Charles' research focused on the mechanisms of action of endocrine-active agents. He has continued this work as a Research Specialist with the Dow Chemical Company. His research evaluates:

- The evaluation of *in vitro* and *in vivo* screening and testing methods for the detection of endocrine-active agents, with a view to the assessment of their utility, robustness, and limitations.
- The interactions of endocrine-active chemicals in multi-component mixtures to better characterize and understand the interactions of endocrine-active chemicals in mixtures.

Dr. Charles' research seeks to improve statistical and experimental methods for assessing interactions in mixtures of increasing complexity. The research directly addresses whether or not the uncertainty factor approach to risk assessment is likely to be protective for chemical mixtures, and also results in a customized, novel approach that is uniquely suited to address the impact of low level exposure to chemical mixtures in the environment.

Dr. Charles states that the SBRP-funded research he participated in at the University of Florida introduced him to the concept of the multidisciplinary approach to the research and provided him with an excellent foundation for his current position as a Research Specialist at Dow Chemical Company. The research conducted by the Dow scientists often requires expertise in several disciplines to address complex mechanistic questions. Such interdisciplinary approaches bring together different perspectives on a given research problem, which might not be taken in consideration b a single individual with specific expertise.

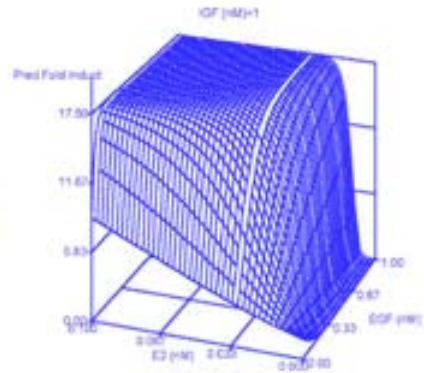
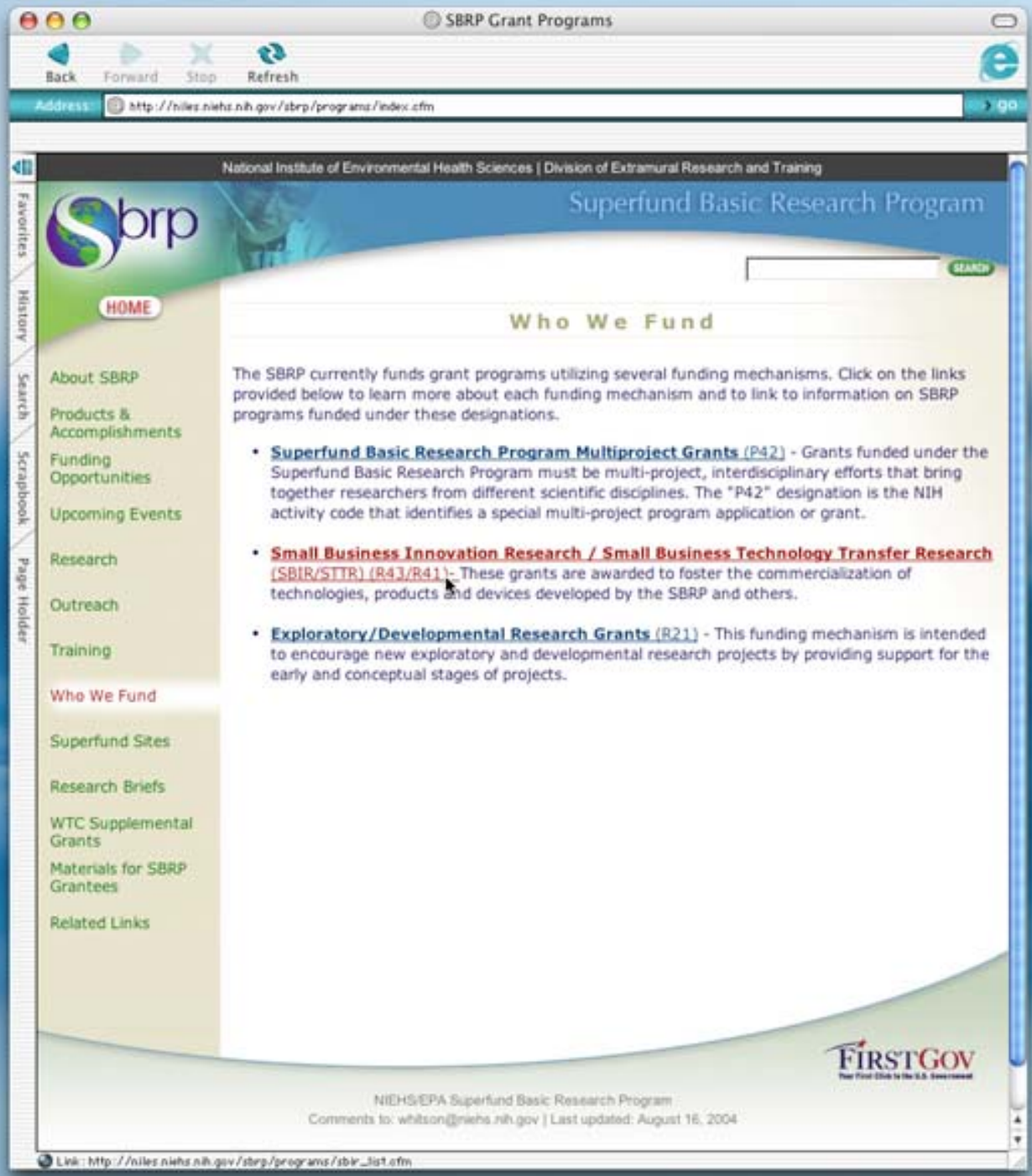


Figure: Response surface modeling of the interaction of chemical mixtures.

Dr. Charles' experience with the University of Florida SBRP prepared him for the process of working with experts from varying disciplines sitting and communicating effectively to formulate strategies to develop appropriate study designs. In his work with endocrine mixtures, he is part of a team of researchers with backgrounds in molecular, genetic and reproductive toxicology along with

Who We Fund

- Organized by grant program
- Includes additional grant programs funded by the SBRP:
  - Small Business Innovation Research and Small Business Technology Transfer Research (R43/R41)
  - Exploratory/Developmental Research (R21)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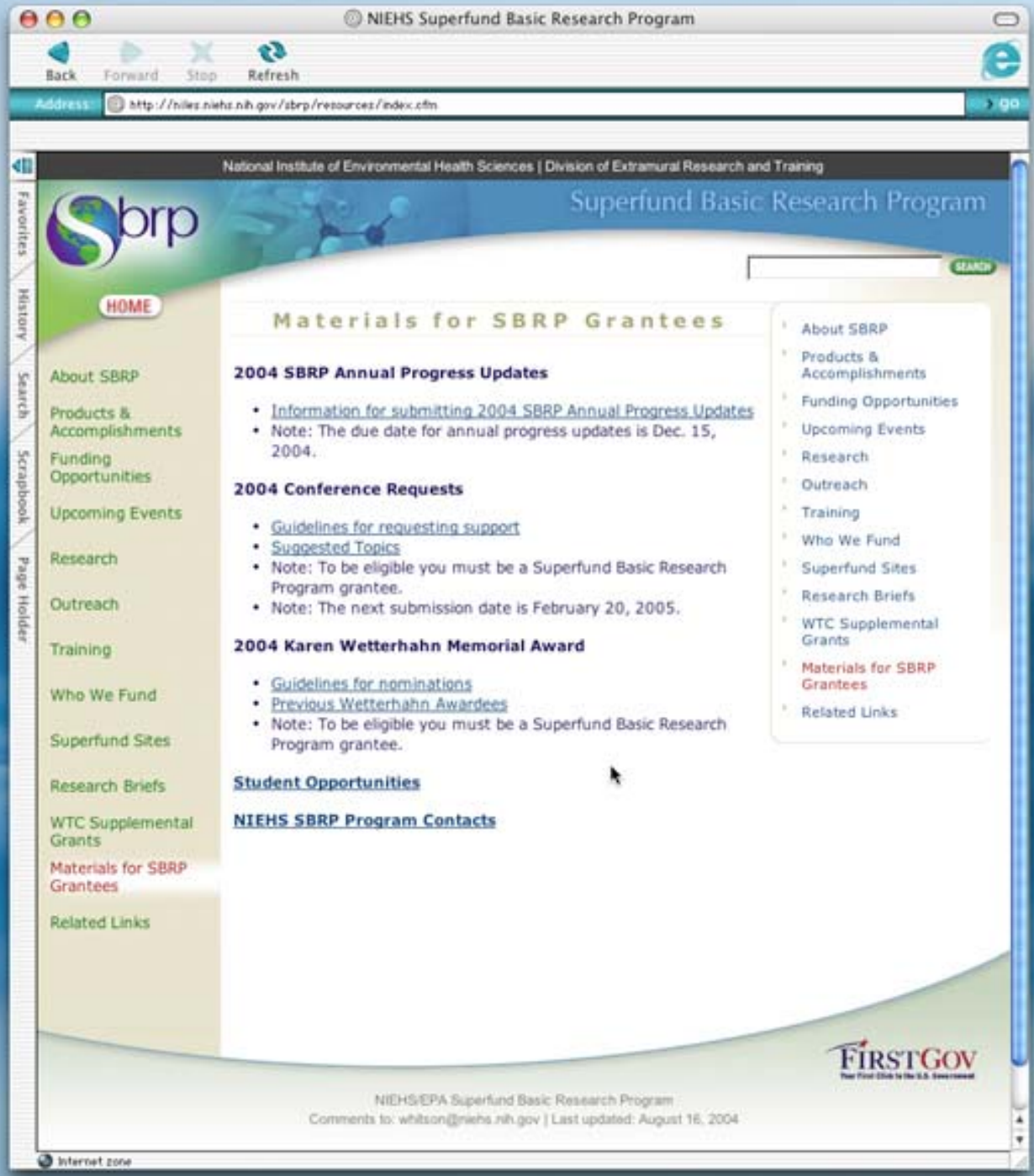
Who We Fund
The SBRP currently funds grant programs utilizing several funding mechanisms. Click on the links provided below to learn more about each funding mechanism and to link to information on SBRP programs funded under these designations.
Superfund Basic Research Program Multiproject Grants (P42) - Grants funded under the Superfund Basic Research Program must be multi-project, interdisciplinary efforts that bring together researchers from different scientific disciplines. The "P42" designation is the NIH activity code that identifies a special multi-project program application or grant.
Small Business Innovation Research / Small Business Technology Transfer Research (SBIR/STTR) (R43/R41) - These grants are awarded to foster the commercialization of technologies, products and devices developed by the SBRP and others.
Exploratory/Developmental Research Grants (R21) - This funding mechanism is intended to encourage new exploratory and developmental research projects by providing support for the early and conceptual stages of projects.
FIRSTGOV
NIEHS/EPA Superfund Basic Research Program
Comments to: whitson@niehs.nih.gov | Last updated: August 16, 2004
Link : http://niles.niehs.nih.gov/sbrp/programs/sbir_list.cfm

Materials for SBRP Grantees

- Annual Update Submission Information
- Conference Requests
- Karen Wetterhahn Memorial Award
- Opportunities for Students
- NIEHS SBRP Contacts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Materials for SBRP Grantees
2004 SBRP Annual Progress Updates
Information for submitting 2004 SBRP Annual Progress Updates
Note: The due date for annual progress updates is Dec. 15, 2004.
2004 Conference Requests
Guidelines for requesting support
Suggested Topics
Note: To be eligible you must be a Superfund Basic Research Program grantee.
Note: The next submission date is February 20, 2005.
2004 Karen Wetterhahn Memorial Award
Guidelines for nominations
Previous Wetterhahn Awardees
Note: To be eligible you must be a Superfund Basic Research Program grantee.
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